Physics

Time Remaining: 45/45 (Minutes)

| Q.1 | Test 2 Motion & Force | Physics Unit Wise |

The rate of change of momentum of a freely falling body in a Non-resistive medium is:

A) Equal to its weight
B) Greater than mg
C) Less than mg
D) Zero

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Time Remaining: 44/45 (Minutes)

Q.2	Test 2 Motion & Force	Physics Unit Wise

A projectile is fired at 60o with 100m s-1. Velocity at maximum height is

A) 0 ms^{-1}

B) 25 ms^{-1}

C) 50 m s^{-1}

D) 20 ms^{-1}

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Physics

Time Remaining: 44/45 (Minutes)

Q.3 Test 2 Motion & Force Physics Unit Wise

Which of following changes when particle is moving with uniform velocity?

A) speed
C) velocity

B) acceleration
D) position vector

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A B C D

Next

Back

Time Remaining: 44/45 (Minutes)

Q.4   Test 2 Motion & Force   Physics Unit Wise

A force of 25N acts on a body for 20 seconds. What will be the change in momentum

A) 5Ns

C) 200 Ns

B) 500 Ns

D) 800 Ns

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 44/45 (Minutes)

| Q.5 | Test 2 Motion & Force | Physics Unit Wise |

At maximum height K.E of projectile is $\frac{1}{4}$ th of its initial K.E. The angle of projection is

A) 30° B) 45°

C) 60° D) 76°

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A ○ B ○ C ○ D

Next

Back

Time Remaining: 44/45 (Minutes)

Q.6   Test 2 Motion & Force   Physics Unit Wise

Two balls have K.E ratio 2 : 1 and masses ratio 2 : 1. The ratio of their momentum is

A) 2 : 1   B) 1 : 2

C) 4 : 1   D) 1 : 4

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 44/45 (Minutes)

Q.7   Test 2 Motion & Force   Physics Unit Wise

A car is travelling with uniform acceleration along a straight road. The road has marker posts every 100 m. when the car passes one post, it has a speed of 10 ms^{-1} and, when it passes the next one, its speed is 20 ms^{-1}. What is the car's acceleration?

A) 0.67 ms^{-2} B) 6.0 ms^{-2}

C) 2.5 ms^{-2} D) 1.5 ms^{-2}

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 44/45 (Minutes)

Q.8   Test 2 Motion & Force   Physics Unit Wise

Which shows the correct relation between time of flight T and maximum height H?

A) $H = \dfrac{gT^2}{8}$

B) $H = \dfrac{8T^2}{g}$

C) $H = \dfrac{8g}{T^2}$

D) $H = \dfrac{8}{gT^2}$

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 44/45 (Minutes)

Q.9 Test 2 Motion & Force Physics Unit Wise

A crow fly 40 m is north and then 30 m in east. The ratio of his distance to displacement

A) 1.4   B) 1.2
C) 1.5   D) 1.8

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.10   Test 2 Motion & Force   Physics Unit Wise

What is rate of change of momentum when 4N force acts on a mass 2 kg for 2s

A) 1 kg ms^{-2}

B) 2 kg ms^{-2}

C) 4 kg ms^{-2}

D) 8 kg ms^{-2}

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.11 Test 2 Motion & Force Physics Unit Wise

A force of 5F acts on a body of mass 30 kg producing acceleration 50 m/s². If 2F force acts on a body of mass M it produces acceleration 60 ms⁻². What is mass M

A) 10 kg B) 20 kg
C) 30 kg D) 40 kg

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A   B   C   D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.12   Test 2 Motion & Force   Physics Unit Wise

A body is projected at $\theta=45°$ with initial velocity $v_i=10m/s$ the range is

A) 10 m   B) 100 m

C) 50 m   D) 25 m

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

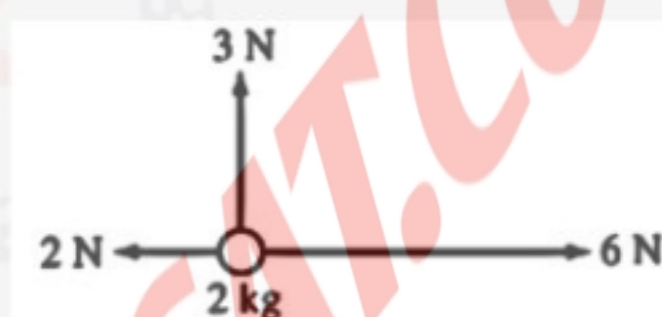## Back

Time Remaining: 43/45 (Minutes)

Q.13   Test 2 Motion & Force   Physics Unit Wise

The figure below shows the forces acting on an object of mass 2 kg. What is the object's acceleration?

A) 2 m/s²
B) 3 m/s²
C) 2.5 m/s²
D) 3.5 m/s²

3 N

2 N ← ○ → 6 N

2 kg

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.14 Test 2 Motion & Force Physics Unit Wise

A foot ball is thrown upward with an angle of 30° with respect to the horizontal. To throw a 40 m pass what must be the initial speed of the ball?

A) 10 ms^{-1}

B) 30 ms^{-1}

C) 21 ms^{-1}

D) 5 ms^{-1}

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.15   Test 2 Motion & Force   Physics Unit Wise

No body begin to move or comes to rest itself is statement of

A) Newton

B) Abu Ali Sena

C) Maxwell

D) Planck's

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

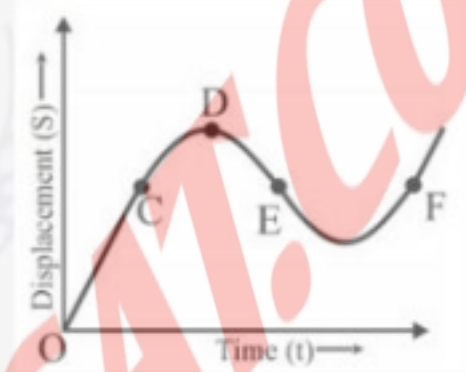**Q.16**   Test 2 Motion & Force   Physics Unit Wise

The displacement time graph for a moving particle is given below. instantaneous velocity of the particle is negative at the point.

A) D   B) F

C) C   D) E

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.17   Test 2 Motion & Force   Physics Unit Wise

The ratio of magnitudes of average velocity to average speed of a moving body in a straight line

A) always less than one
B) always equal to one
C) always more than one
D) equal to or more than one

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A   B   C   D

Next

Back

Time Remaining: 43/45 (Minutes)

Q.18   Test 2 Motion & Force   Physics Unit Wise

If body is falling freely, distance covered in 3 second is (g = $10ms^{-2}$)

A) 45m
C) 54m

B) 90m
D) 25m

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.19   Test 2 Motion & Force   Physics Unit Wise

The "reaction" force does not cancel the "action" force because:

A) the action force is greater than the reaction force

B) they act on different bodies

C) they act in the same direction

D) the reaction force is greater than the action force

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A   B   C   D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.20 | Test 2 Motion & Force | Physics Unit Wise

The slope of v-t graph for uniform velocity is

A) 0
B) Positive
C) Negative
D) Positive or negative

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.21   Test 2 Motion & Force   Physics Unit Wise

When projectile is projected in XY-plane then v_y

A) Remains same
B) Goes on increasing with height
C) Goes on decreasing with height
D) First increases then decreases

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A ○ B ○ C ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.22	Test 2 Motion & Force	Physics Unit Wise

To improve the jumping record, a long jumper should jump at an angle of:

A) 30°   B) 60°

C) 45°   D) 90°

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Q.23	Test 2 Motion & Force	Physics Unit Wise

A car, initially at rest, travels 20 m in 4 s along a straight line with constant acceleration. The acceleration of the car is:

A) 0.4 m/s²

B) 1.3 m/s²

C) 2.5 m/s²

D) 4.9 m/s²

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A B C D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.24	Test 2 Motion & Force	Physics Unit Wise

A baseball is hit straight up and is caught by the catcher 2.0 s later. The maximum height of the ball during this interval is:

A) 4.9 m

B) 7.4 m

C) 9.8 m

D) 12.6 m

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.25   Test 2 Motion & Force   Physics Unit Wise

The range of projectile is directly proportional to

A) $\sin^2\theta$

B) $\sin\theta$

C) $\sin2\theta$

D) $2\sin\theta$

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.26 Test 2 Motion & Force — Physics Unit Wise

The distance covered by a body in time "t" starting from rest is

A) at^2

B) $\frac{1}{2}at^2$

C) $2at^2$

D) $\frac{1}{2}a^2t$

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.27   Test 2 Motion & Force   Physics Unit Wise

The change of position of a body in a particular direction is called its:

A) Displacement   B) Velocity
C) Acceleration   D) Force

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 42/45 (Minutes)

Q.28   **Test 2 Motion & Force**   **Physics Unit Wise**

The total change in displacement divided by the total change in time of body is called its:

A) Average Velocity
B) Instantaneous Velocity
C) Uniform Velocity
D) Speed

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 41/45 (Minutes)

Q.29	Test 2 Motion & Force	Physics Unit Wise

The change of displacement in a very small interval of time (time tends to zero) of a body is called its:

A) Average Velocity
B) Instantaneous Velocity
C) Uniform Velocity
D) Uniform speed

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

○ A   ○ B   ○ C   ○ D

Next

Back

Time Remaining: 41/45 (Minutes)

Q.30 Test 2 Motion & Force Physics Unit Wise

A force acts on a body that is free to move. We know that magnitude and direction of the force and the mass of the body. Newton's second law of motion enables us to determine the body's

A) Acceleration B) Speed
C) Velocity D) Force

STAR INSTITUTE LAHORE

Click Here if Image Doesn't Load

Correct Answer:

A B C D

Submit Quiz

Back

Test No #02   Day #02

| Thursday | Unitwise Session. | 29-7-20|| |

⇒ Motion And Force - Part - II   Atomic Structure
⇒ Pronoun-I (5-8) Book-1   Bioenergetics (1)

Physics   ==Motion And Force - II==

==Answer Key==

1-A 2-C 3-D 4-B 5-C 6-A 7-D
8-A 9-A 10-C 11-C 12-A 13-C 14-C
15-B 16-D 17-B 18-A 19-B 20-D 21-C
22-C 23-C 24-A 25-C 26-B 27-A 28-A
29-B 30-A

==① Discussion==

MCQ #01 for freely falling body

$$\frac{\Delta p}{t} = F$$

$$F_g = weight$$

MCQ NO #2   Shortcut $v_{top} = v\cos\theta$

velocity of top = v_{top} = $100 \times \cos 30$

$$100 \times \frac{1}{2} = 50 \, ms^{-1}$$

MCQ NO #03 velocity uniform mean
acceleration = 0   speed = Same
only position of body will change.

MCQ #04

$$\frac{\Delta p}{t} = F \quad \Delta p = F \times t = 25 \times 20 = \boxed{500 \, NS}$$

MCQ #05 kinetic energy at top = K.E initial cos²θ

[shortcut]

$$\frac{Potential}{4} = K.E_{initial} \cos^2\theta = \frac{1}{4} = \cos^2\theta$$

$$\sqrt{\frac{1}{4}} = \sqrt{\cos^2\theta} \Rightarrow \frac{1}{2} = \cos\theta$$

$$\cos\theta = \frac{1}{2} = \boxed{60°}$$

MCQ NO #06 $P = \sqrt{2mK.E}$

$$\frac{P_A}{P_B} = \sqrt{\frac{mK.E}{mK.E}} = \sqrt{\frac{2\times2}{1\times1}} = \sqrt{\frac{4}{1}} = \boxed{2:1}$$

MCQ #07 $S = 100$ $u = 10 ms^{-1}$ $v_f = 20 ms^{-1}$

According to $2as = v_f^2 - v_i^2$

$$a = \frac{v_f^2 - v_i^2}{2S} = \frac{400 - 100}{2\times100}$$

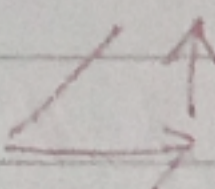$$a = \frac{300}{200} = \frac{3}{2} = \boxed{1.5}$$

MCQ #08 $H = \frac{gt^2}{8}$ Relation b/w time and Height

MCQ #09   Distance - linear quantity.
Displacement - vector quantity.

Scalar quantity simply add to get but vector ki direction ko find kar ny kayliay Pythagorean theorem use to go.

Distance = north + east = 30 + 40 = 70 m

Displacement = ∠↗ $(Hyp)^2 = (Alti)^2 + (Base)^2$

$$(\text{Hypoteneous})^2 = (40)^2 + (30)^2$$

$$1600 + 1900 = 2500$$

$$Hyp = \sqrt{2500} = 50$$

$$\underline{\frac{Distance}{Displacement}} = \frac{76}{50} = \boxed{1:4}$$

MCQ # 6

$$\frac{\Delta p}{t} = Force \quad \text{independent of given time}$$
$$\text{and mass in the question}$$
$$\text{statement.}$$

MCQ # 11 Step of find force value

$$F = ma = 5F = (30)(50)$$

$$F = \frac{30 \times 50}{5} = 30 \times 10 = \boxed{\frac{}{300N}}$$

Step 02

$$F = ma$$

$$a = \frac{F}{m} = \frac{2F}{m} = \frac{2 \times \overset{5}{300}}{60}$$

$$\boxed{\overline{a} = 10 \, ms^{-2}}$$

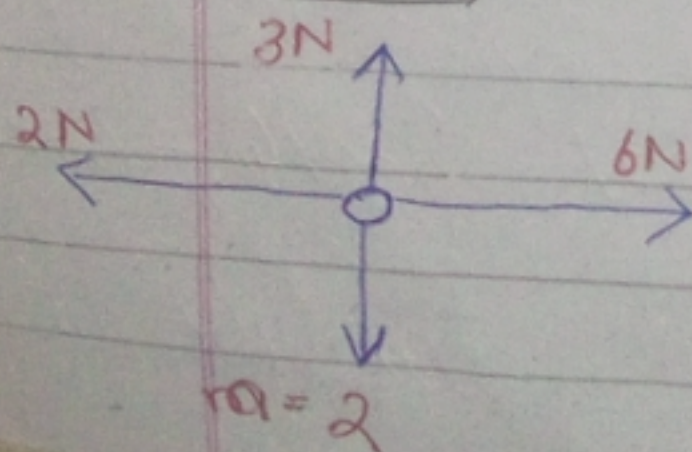## MCQ # 12

Range maximum $= 45°$

$$\boxed{R = \frac{u_i^2}{g}} = \frac{(10)^2}{10} = \frac{100}{10} \boxed{10m}$$

MCQ # B

find resultant force
$$2 - 6 = 4.$$

angle b/w 3N and 4N (resultant force is (90°)

So we use pythagorous theorem.

$$(3N) + (4N) = \sqrt{9+16} = \boxed{5N}$$

Resultant Force = 5N.

acceleration = $a = \dfrac{F_s}{m} = \dfrac{5}{2} = \boxed{2.5}$

$\boxed{F = ma}$

MCQ # 14

$$\boxed{R = \dfrac{u_1^2 \sin 2\theta}{g}} \Rightarrow u_1^2 = \dfrac{gR}{\sin 2\theta}$$

$$u_1^2 = \dfrac{10 \times 40}{\sin 2(30°)} = \dfrac{400}{\sin 60} = \dfrac{400}{0.8} = \dfrac{400}{8/10}$$

$$\Rightarrow \dfrac{400 \times 10}{8} = \dfrac{4000}{8} = 500$$

$$\sqrt{u_1^2} = \sqrt{500} \therefore u_1 = \boxed{25 m s^{-1}}$$

nearly equal to $\boxed{21 m s^{-1}}$ in given statement.

MCQ #15

MCQ # 06 $-$ive slope $\boxed{\theta > 90°}$
(acceleratio = $-$ive)

MCQ #17   (At uniform situation)

$\dfrac{\text{Average speed}}{\text{Average velocity}} = 1$.

MCQ #18 for freely falling body.   shortcut $\boxed{S = \dfrac{gt^2}{2}}$

$$S = \dfrac{10 \times (3)^2}{2} = \dfrac{10 \times 9}{2} = \boxed{45 m}$$

MCQ #19

MCQ #20

Horizontal line

0 = slope

So acceleration = 0

MCQ #21

MCQ #22

MCQ #23 $S = u_i t + \frac{1}{2}at^2$ $u_i = 0$

$$S = \frac{1}{2}at^2 \Rightarrow a = \frac{2S}{t^2} = \frac{2 \times 20}{16} = \boxed{\frac{40}{16}}$$

MCQ #24 $1s \uparrow \downarrow 1s$ total time = 2s

To reach max height = time = 1s

so

for height = $1s = \frac{gt^2}{2} = \frac{10 \times 1}{2} = \boxed{5m}$

MCQ #25 $R = \frac{u_i^2 \sin 2\theta}{g}$ $\boxed{R \propto \sin 2\theta}$

MCQ #26 $S = u_i t + \frac{1}{2}at^2$ if $u_i = 0$

$$\boxed{S = \frac{1}{2}at^2}$$

MCQ #27 Change in Position = Displacement
(Book ki line hai)

MCQ 28

MCQ #29

MCQ #30